



DEPARTMENT OF EDUCATION

[Docket ID ED-2022-IES-1]

Request for Information on Effective Interventions to Improve Middle School Science Achievement and Mathematics Achievement in Grades 3 Through 5 for Students with Disabilities

AGENCY: Institute of Education Sciences, Department of Education.

ACTION: Request for information.

SUMMARY: The National Center for Education Evaluation and Regional Assistance (NCEE) at the U.S. Department of Education's (Department) Institute of Education Sciences (IES) is charged by Congress to identify and encourage the use of evidence-based practices in education. Through this request for information (RFI), NCEE seeks public input about the characteristics of middle school science and upper elementary mathematics interventions as well as information on publicly available research describing their efficacy. Feedback from developers of such interventions would be of particular value to the Department.

DATES: We must receive your comments by [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Submit your response to this RFI through the Federal eRulemaking Portal. We will not accept submissions by postal mail, commercial mail, hand delivery, fax, or

email. To ensure that we do not receive duplicate copies, please submit your comments only once. In addition, please include the Docket ID at the top of your comments.

Federal eRulemaking Portal: Go to www.regulations.gov to submit your comments electronically. Information on using Regulations.gov, including instructions for accessing agency documents, submitting comments, and viewing the docket, is available on the site under the "FAQ" tab.

Privacy Note: The Department's policy for comments received from members of the public is to make these submissions available for public viewing in their entirety on the Federal eRulemaking Portal at www.regulations.gov. Therefore, commenters should be careful to include in their comments only information that they wish to make publicly available. We encourage, but do not require, that each respondent include his or her name, title, institution or affiliation, and the name, title, mailing and email addresses, and telephone number of a contact person for his or her institution or affiliation, if any.

FOR FURTHER INFORMATION CONTACT: Matthew Soldner, Commissioner, National Center for Education Evaluation and Regional Assistance & Agency Evaluation Officer, Institute of Education Sciences, U.S. Department of Education, 400 Maryland Avenue, SW, room 4160, Potomac Center Plaza, Washington, DC 20202-7240. Telephone: (202) 245-8385. Email: Matthew.Soldner@ed.gov.

If you use a telecommunications device for the deaf (TDD) or a text telephone (TTY), call the Federal Relay Service (FRS), toll-free, at 1-800-877-8339.

SUPPLEMENTARY INFORMATION:

Background:

As evidenced by recent results from the National Assessment of Educational Progress (NAEP), too many of the Nation's students struggle with building foundational skills in science (see <https://go.usa.gov/xehQC>) and math (see <https://go.usa.gov/xehQY>). The problem is particularly acute among student groups that education systems have historically underserved.

In NAEP's 2019 assessment of twelfth graders' science proficiency, 69 percent of Black students, 56 percent of Hispanic students, 58 percent of Native Hawaiian/Other Pacific Islander students, and 51 percent of American Indian/Alaska Native students were identified as "Below NAEP Basic." On the same assessment, 75 percent of twelfth grade students with disabilities demonstrated proficiency "Below NAEP Basic," a rate double that of their peers not identified with a disability. These results signal a need to intervene early in students' academic careers, with the aim of increasing the likelihood that students are scientifically literate by the time they leave high school.

For many students, mastery of foundational math skills is also a significant challenge. The success of students

with disabilities is of particular concern. In 2017, 54 percent of fourth graders with disabilities scored “Below NAEP Basic” in math, compared to only 15 percent of students without disabilities. Students entering fourth grade with poor whole number knowledge are more likely to struggle in later grades than their peers with a better understanding,^{1,2} and it is in fourth grade where curricula increasingly focus on rational numbers and fractions.³ Not developing proficiency in these domains has negative and long-term implications for students. In addition to being critical to life skills including personal finance, cooking, and healthcare, this knowledge is critical to later mathematical learning, including algebra.

As part of its continuing effort to respond to disruptions caused by the COVID-19 pandemic, IES plans to promote the advancement and testing of programs and products (interventions) that can improve students’ proficiency in science and mathematics. We are particularly interested in (1) interventions that can improve middle grades students’ science achievement,

¹ Barbieri, C. A., Rodrigues, J., Dyson, N., & Jordan, N. C. (2020). Improving fraction understanding in sixth graders with mathematics difficulties: Effects of a number line approach combined with cognitive learning strategies. *Journal of Educational Psychology*, 112(3), 628.

² Namkung, J. M., Fuchs, L. S., & Koziol, N. (2018). Does initial learning about the meaning of fractions present similar challenges for students with and without adequate whole-number skill? *Learning and Individual Differences*, 61, 161-167. doi:10.1016/j.lindif.2017.11.018

³ Siegler, R. S., Duncan, G. J., Davis-Kean, P. E., Duckworth, K., Claessens, A., Engel, M., Susperreguy, M. I., & Chen, M. (2012). Early predictors of high school mathematics achievement. *Psychological Science*, 23, 691-697. doi:10.1177/0956797612440101

particularly among students in the lowest quartile of proficiency regardless of disability status; and (2) digital interventions that can improve the math proficiency of third to fifth grade students with or at risk of developing disabilities, with an emphasis on the domains of whole numbers, rational numbers, and fractions. Through this RFI, IES is seeking information from developers and program providers about relevant interventions. This includes interventions that developers and program providers believe are already wholly responsive to the needs identified above as well as those that could be responsive to these needs if modified slightly.

When responding to this RFI, developers or program providers intending to serve students "at risk" of developing a disability should clearly identify the disability or disability categories that proposed beneficiaries are at risk of developing and specific factors that place them at heightened risk. The determination may include, for example, factors used for moving children and youth to higher tiers in a Response-to-Intervention model. Factors based solely on general population characteristics, such as labeling a student "at risk" for disabilities because they are from low-income families or are English language learners, are not sufficient for this purpose.

This is a request for information only. This RFI is

not a request for proposals (RFP) or a promise to issue an RFP or a notice inviting applications. This RFI does not commit the Department to contract for any supply or service whatsoever. Further, we are not seeking proposals and will not accept unsolicited proposals. The Department will not pay for any information or administrative costs that you may incur in responding to this RFI. The documents and information submitted in response to this RFI will not be returned.

We will review every comment, and, as described above, electronic comments in response to this RFI will be publicly available on the Federal eRulemaking Portal at www.regulations.gov. Please note that IES will not directly respond to comments.

Solicitation of Comments:

We invite developers or program providers with interventions relevant to improved achievement in (1) middle school science, or (2) upper elementary math with an emphasis on students with or at risk of developing a disability to share the following in their comments:

- (1) The name of their intervention;
- (2) The curricular focus of their intervention (i.e., middle school science or upper elementary math);
- (3) A brief description of the intervention, potentially including (a) its major components and pedagogical features, (b) its delivery modality (e.g.,

face-to-face; via an online platform accessed through a browser or mobile app), (c) its intended duration and intensity (e.g., 60 minutes, three times a week, for six weeks), and (d) the extent to which information on student progress is available for educators and family members/caretakers;

(4) The extent to which the intervention, as it is currently available, focuses on improving the proficiency of diverse groups of students, particularly (a) low-performing students and (b) students with or at risk of developing a disability;

(5) The extent to which the intervention is accessible to students with disabilities;

(6) If available, a link or links to publicly available information about the outcomes associated with the intervention's use, including third-party evaluations; and

(7) If available, a link or links to web pages that provide additional relevant detail about the intervention, such as information about its cost or its developers.

The Institute is committed to improving the public's access to, and the discoverability of, research on the efficacy of education interventions. In service of that goal, we invite developers who have commissioned studies of their interventions' efficacy and who hold copyright to those studies, or their authorized representatives, to

consider depositing eligible content into ERIC: the Institute of Education Sciences' bibliographic and full-text database of education research (<https://eric.ed.gov/>). More information about submitting content to ERIC, including our selection policy and how to access the online submission portal, can be found at <https://eric.ed.gov/submit/>.

Accessible Format: On request to the program contact person listed under FOR FURTHER INFORMATION CONTACT, individuals with disabilities can obtain this document in an accessible format. The Department will provide the requestor with an accessible format that may include Rich Text Format (RTF) or text format (txt), a thumb drive, an MP3 file, braille, large print, audiotape, or compact disc, or other accessible format.

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